

WHAT IS CLAIMED IS:

1                   1. A system for indicating the location of an energy zone on an object surface,  
2     with the energy zone being an area on the object surface that is imaged onto an IR detector by  
3     the IR optical system included in a non-contact IR thermal measurement device, said system  
4     comprising:  
5                   a video sub-system for displaying an image of at least a part of the object  
6     surface;  
7                   a range-finding sub-system for measuring the distance between the non-  
8     contact IR thermal measurement device and the object surface and outputting a distance  
9     signal indicating a measured distance; and  
10                  an optical overlay sub-system, coupled to the range-finding sub-system, for  
11     overlaying a shape outline, having a dimension determined by a received measured distance,  
12     over a displayed image of the object surface and with the shape outline indicating the extent  
13     of a displayed image included in the energy zone.

1                   2. The system of claim 1 where the range-finding sub-system comprises:  
2                   a laser diode for emitting a laser-beam along a first optical axis;  
3                   a position-sensitive photodiode, having a major surface and displaced from the  
4     first optical axis, for receiving a portion of the laser beam reflected from the object surface  
5     and indicating the position of a reflected portion on the major surface.

1                   3. The system of claim 2 where the first axis is substantially coincident with  
2     the optical axis of the IR optical system so that the laser beam indicates the center of the  
3     energy zone.

1                   4. The system of claim 1 where the video-subsystem comprises:  
2                   a digital image generating chip for outputting digital image data, a display  
3     device for displaying digital image data, and an image controller chip for controlling the  
4     display device to display digital image data provided by the image generating chip;  
5                   and where the optical overlay subsystem includes:  
6                   a storage device for storing circle data utilized to form circle images of  
7     different diameters;  
8                   and with the image controller coupled to the storage device and the range-  
9     finding sub-system, programmed to select circle data from the storage device for generating

10 a circle having a diameter size determined by the measured distance provided by the range-  
11 finding sub-system.

1 5. The system of claim 1 where the shape outline is a circle.

1 6. A method for indicating the location of an energy zone on an object  
2 surface, with the energy zone being an area on the object surface that is imaged onto an IR  
3 detector by the IR optical system included in a non-contact IR thermal measurement device,  
4 said method comprising steps of:  
5 acquiring a digital image of the object surface;  
6 displaying a digital image of the object surface;  
7 measuring the distance to the object surface to obtain a distance value;  
8 forming a geometrical shape indicating the portion of the object surface  
9 indicating the portion of the object surface included in the energy zone; and  
10 overlaying the geometrical shape over the digital image of the object surface  
11 to indicate the location of the energy zone.

1 7. The method of claim 6 where the step of forming a geometrical image  
2 further comprises the step of:  
3 compensating for parallax between the acquired digital image and an optical  
4 axis of the IR optical system.

1 8. A system for indicating the location of an energy zone on an object surface,  
2 with the energy zone being an area on the object surface that is imaged onto an IR detector by  
3 the IR optical system included in a non-contact IR thermal measurement device, said system  
4 comprising:  
5 means for acquiring a digital image of the object surface;  
6 means for displaying a digital image of the object surface;  
7 means for measuring the distance to the object surface to obtain a distance  
8 value;  
9 means for forming a geometrical shape indicating the portion of the object  
10 surface indicating the portion of the object surface included in the energy zone; and  
11 means for overlaying the geometrical shape over the digital image of the  
12 object surface to indicate the location of the energy zone.

1                    9. The system of claim 8 where the means for forming a geometrical image  
2 further comprises:  
3                    means for compensating for parallax between the acquired digital image and  
4 an optical axis of the IR optical system.